

REMARKS

The final Office Action dated July 26, 2005 and the Advisory Action dated November 14, 2005 have been carefully considered. Claims 1-5 are pending in the application, with claim 1 being the only independent claim. A Request for Continued Examination was filed on November 28, 2005 (November 26, 2005 is a Saturday).

Claim 1 stands rejected under 35 U.S.C. §103(a) as unpatentable over U.S. Patent No. 5,454,455 (Kundmuller) in view of U.S. Patent No. 5,862,893 (Volpel). The Examiner acknowledged (final Office Action, pages 2 and 3) that Kundmuller fails to teach a stop disk that has an outer diameter greater than that of an adjacent piston, but reasoned (Advisory Action, page 2) that merely increasing the diameter of the topmost disk of Kundmuller is nothing more than an obvious modification in light of Volpel. However, the Examiner has cited to no suggestion or motivation to make the topmost support disk of Kundmuller a stop disk by increasing its outer diameter in light of Volpel. Additionally, neither Volpel or Kundmuller teaches or suggests a stop disk that has an outer diameter greater than that of an adjacent piston.

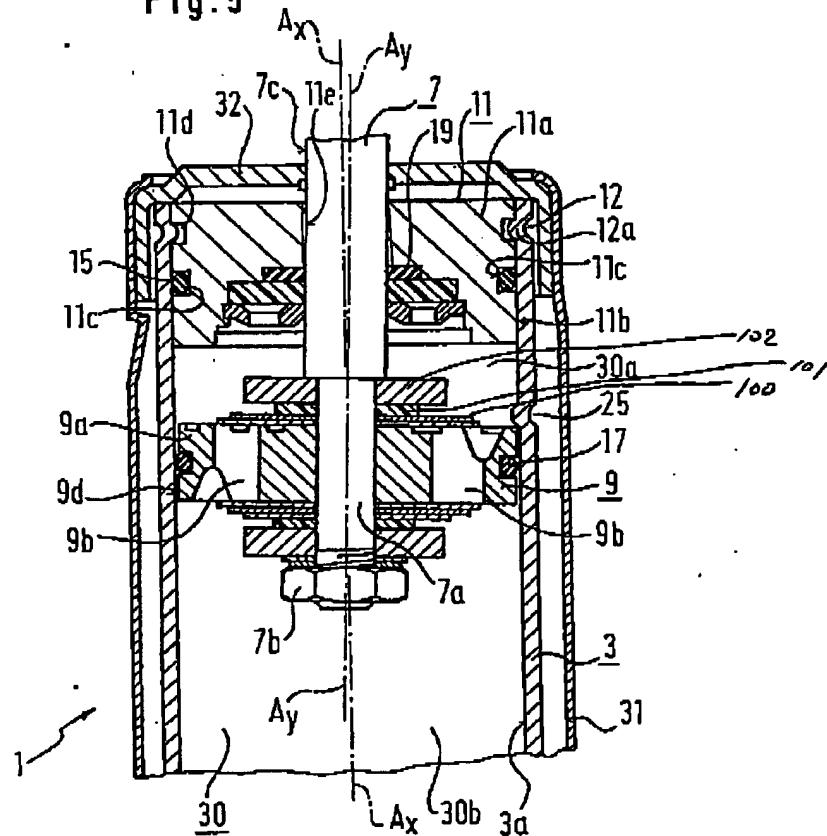
Kundmuller relates to a vibration damper. When there is a fire near the vibration damper, increasing pressure in chamber 30a of cylinder 3 pushes piston 9 to move outward axially until piston 9 reaches and is relatively slowly braked by indentation 25 which is on one side of cylinder 3. The combination of increasing pressure in chamber 30a and indentation 25 tilts piston 9 and piston rod 7 relative to cylinder 3, which in turn creates a clamping force between piston 9 and cylinder 3 and between piston rod 7 and plug structure 11a of piston rod guiding and sealing unit 11. This clamping force slows down the axial movement of piston 9, piston rod 7 and piston rod guiding and sealing unit 11 in the direction of the extension relative to cylinder 3. See col. 6, line 66 to col. 7, line 6; col. 7, lines 12-27; col. 7, lines 45-50; col. 7, line 62 to col. 8, line 6; Fig. 5 of Kundmuller.

Furthermore, increasing temperature in chamber 30a causes plug structure 11a, which is at least partially made of aluminum alloy at its radially outer circumference portion, to reach its thermal stability limit. As a result, plug structure 11a is eventually pushed out of cylinder 3, bypassing bead 12a. In the process, sealing ring 15 between plug structure 11a and cylinder 3 and sealing ring 19 between plug structure 11a and piston rod 7 become less effective, which allows damping medium to escape from chamber 30a before plug structure 11a is pushed out of cylinder 3.

See col. 6, lines 6-9; col. 8, lines 7-14, 44-64; Figs. 6 and 6a of Kundmuller.

Reproduced below is Fig. 5 of Kundmuller with added reference numerals 100-102.

Fig. 5



As explained in detail in applicants' Response dated October 26, 2005, in Kundmuller disks 100 are valve disks, disk 101 is a distance disk, and the topmost disk 102 is a support disk only. These disks are known in the art. See, e.g., col. 6, line 44 to col. 7, line 9, Fig. 1 of U.S. Patent No. 5,615,756; col. 4, lines 16-27, Fig. 1 of U.S. Patent No. 4,821,852; col. 4, lines 15-30, Figs. 3 and 3A of U.S. Patent No. 5,769,192. In addition, Kundmuller and the present application are assigned to the same company (Fichtel & Sachs AG has changed its name to ZF Sachs AG).

Volpel relates to a fluid strut that can be used to facilitate the opening of a trunk lid of a motor vehicle. Referring to Fig. 1 of Volpel, piston rod 13 with piston 17 is disposed inside cylinder 15 of the fluid strut. Piston rod guide 19 is supported axially on crimped portion 23 of cylinder 15, and forms a stop for piston rod gasket 21. Piston rod gasket 21 seals off the interior of cylinder 15 from the atmosphere, and is held in place by fixing sleeve 25 supported on one side of encircling bead 27 on cylinder 15. Fusible sleeve 29 is disposed on the other side of bead 27 (see col. 3, lines 18-35; Fig. 1 of Volpel).

During normal operation, fusible sleeve 29 functions as a stop for piston 17 so that narrow portion 33 of piston rod 13 does not align with piston rod gasket 21. When there is a fire near cylinder 15, fusible sleeve 29 melts away. Consequently, piston rod 13 moves further in the direction of the extension with its narrow portion 33 in alignment with piston rod gasket 21. This creates a pressure release passage between the interior of cylinder 15 and the atmosphere so that the pressure inside the interior is reduced (see col. 3, lines 35-53; Figs. 1-2 of Volpel).

Thus, unlike Kundmuller, Volpel does not teach or suggest creating a clamping force to slow down the outward axial movement of piston 17, piston rod 13 and piston rod guide 19 by tilting piston 17 and piston rod 13 relative to cylinder 15. Furthermore, unlike Kundmuller, because of crimped portion 23, piston rod guide 19 of Volpel remains inside cylinder 15 instead of being pushed out of cylinder 15 so that narrow portion 33 of piston rod 13 can align with piston rod

gasket 21 to create the pressure release passage. Additionally, because of crimped portion 23 and encircling bead 27, none of piston 17, piston rod 13 and piston rod guide 19 can be tilted relative to cylinder 15. In view of these different functions and results, there is no suggestion or motivation to modify or combine Kundmuller with Volpel in the way proposed in the final Office Action and Advisory Action.

Furthermore, as explained in detail in applicants' Response (pages 6 and 7) dated October 26, 2005, and as shown in the alternative embodiment of Fig. 4 of Volpel, disk 142 is an integral part of piston valve 140 on piston 144. Without disk 142, piston valve 140 cannot function as a piston valve. And without piston valve 140, piston 144 cannot function as a piston. Thus, disk 142 should be viewed as part of piston 144. As such, contrary to the Examiner's interpretation, disk 142 does not constitute a stop disk that is adjacent to a piston and has an outer diameter greater than that of the piston as recited in claim 1 of the present application.

As discussed earlier, unlike Kundmuller, Volpel does not teach or suggest creating a clamping force to slow down the axial movement of piston 17, piston rod 13 and piston rod guide 19 in the direction of the extension by tilting piston 17 and piston rod 13 relative to cylinder 15 in the event of a fire.

In addition, in Volpel, piston 17, piston rod 13 and piston rod guide 19 cannot be tilted relative to cylinder 15, while piston 9 and piston rod 7 of Kundmuller can be tilted relative to its cylinder 3. Since Volpel's piston can be tilted while Kundmuller's piston cannot be tilted, it would not be possible to combine the teaching of Volpel with Kundmuller, and for this additional reason there would be no motivation to make this combination.

In view of these differences and the fact that disk 142 of Volpel is really part of piston 144, a person with ordinary skill in the pertinent art would not be motivated by piston 144 of Volpel to make support disk 102 of Kundmuller a stop disk by increasing its outer diameter. Furthermore,

neither Volpel or Kundmuller teaches or suggests a stop disk that has an outer diameter greater than that of an adjacent piston. The fact that something can be done is an insufficient basis to obviate an invention. Absent a motivation, the references can be modified and/or combined in the way proposed in the final Office Action and Advisory Action only with impermissible hindsight in view of the presently claimed invention.

In view of the foregoing, withdrawal of the §103(a) rejection of claim 1 is respectfully requested.

Dependent claims 2-5 are patentable for at least the same reasons that independent claim 1 is patentable, as well as for the additional limitations recited therein.

Based on all of the above, applicants respectfully submit that the application is in condition for allowance, and such action is respectfully requested.

It is believed that no fees or charges are required at this time in connection with the application; however, if any fees or charges are required at this time, they may be charged to our Patent and Trademark Office Deposit Account No. 03-2412.

Respectfully submitted,

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